



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

AUG 06 2009

OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

MEMORANDUM

SUBJECT: National Performance Audit Program, PM_{2.5} and Pb Performance Evaluation Program Implementation Decision Memorandum for Calendar Year (CY) 2010

FROM: Richard A. Wayland, Director *Richard A. Wayland*
Air Quality Assessment Division (C304-02)

TO: Air Division Directors, Regions 1-10

This is notification to the Air Division Directors concerning the implementation of the National Performance Audit Program (NPAP) for National Ambient Air Quality Standards (NAAQS) gases, the PM_{2.5} Performance Evaluation Program (PM_{2.5}-PEP), and starting this year, the implementation of the Pb Performance Evaluation Program (Pb-PEP). This memorandum is our annual follow-up to provide monitoring organizations time to make an informed decision whether to implement these performance evaluations or to approve a re-direction of State and Tribal Assistance Grant (STAG) to EPA. If re-direction is chosen, EPA will implement these audit activities as associated program support.

There are two options for satisfying this requirement: self-implementation of adequate and independent audits or EPA-implementation of PM_{2.5}-PEP, Pb-PEP, and/or NPAP using STAG grant funds. We request that each monitoring organization under your jurisdiction decide by September 4, 2009, for the following CY 2010 implementation:

- whether they will implement the PM_{2.5}-PEP themselves,
- whether they will implement the Pb-PEP themselves, and
- whether they will implement the NPAP themselves.

A "no" to any answer will indicate that the monitoring organization, for CY 2010, approves the re-direction of fiscal year (FY) 2010 STAG funds to EPA for federal implementation for the program marked "no." Attachment 1 provides a little more background on the program and their costs. Attachment 2 provides the information we would like to obtain from each monitoring organization.

NOTE: As part of the grant allocation process, OAQPS will propose that STAG funds be re-directed to OAQPS for all monitoring organizations that, for the current year, are not implementing the PEP or NPAP programs, even for those organizations declaring their intent to perform the work by September 4, 2009. If the monitoring organization demonstrates its capability to implement the PM_{2.5}-PEP, Pb-PEP, and NPAP to the EPA Region by October 1, 2009, the redirected funds will be distributed back to the monitoring organization. This process will ensure that the PEP and NPAP programs will be federally-implemented for those organizations planning on implementing the PEP and NPAP but, for some reason, have encountered implementation delays.

If you have any questions on the PEP or NPAP Programs, please contact Dennis Crumpler, PEP coordinator (919-541-0871), or Mark Shanis, NPAP coordinator (919-541-1323).

Attachments

Attachment 1

Background

The PM_{2.5}-PEP, Pb-PEP, and NPAP are performance evaluations, which are a type of audit where quantitative data are collected independently in order to evaluate the proficiency of an analyst, monitoring instrument, or laboratory. The programs:

- allow one to determine data comparability and usability across sites, networks, instruments and laboratories;
- provide a level of confidence that monitoring systems are operating within an acceptable level of data quality so data users can make decisions with acceptable levels of certainty;
- verify the precision and bias estimates reported by the monitoring organizations;
- assure the public of non-biased assessments of data quality;
- provide a quantitative mechanism for EPA to defend the quality of data;
- provide information to monitoring organizations on how they compare with the rest of the nation, in relation to the acceptance limits, and to assist in corrective actions and/or data improvements.

PM_{2.5}-PEP Definitions of Adequate and Independent

PM_{2.5}-PEP definitions of adequate and independent and the consequential implementation requirements were provided in a memorandum dated January 8, 2007, from Phil Lorang sent to the Regional Air Program Managers for Ambient Monitoring and Air Monitoring Quality Assurance Contacts. The attachment that provided detailed guidance for determining the independence and adequacy of monitoring organization programs proposing to assume their PM_{2.5}-PEP responsibilities has been updated on and can be found on AMTIC¹. The following major elements have not changed and are summarized below.

Adequate - Adequate for the PM_{2.5}-PEP is described in 40 CFR Part 58 Appendix A Section 3.2.7.

Primary quality assurance organizations (PQAOs) with 5 or less PM_{2.5} monitoring sites are required to have 5 valid audits per year distributed across the 4 quarters; PQAOs with greater than 5 sites would be required to have 8 valid audits per year distributed across the 4 quarters. EPA requires:

- 100 percent completeness (meaning whatever it takes to get 5 or 8 valid samples).
- All samplers subject to an audit within 6 years.

¹ <http://www.epa.gov/ttn/amtic/pmpep.html> posted 7/25/08

Independent - The following definition comes directly from the 1998 PEP Implementation Plan, found on AMTIC at <http://www.epa.gov/ttn/amtic/pmpep.html>.

Independent assessment - *an assessment performed by a qualified individual, group, or organization that is not part of the organization directly performing and accountable for the work being assessed. This auditing organization must not be involved with the generation of the routine ambient air monitoring data. An organization can conduct the PEP if it can meet the above definition and has a management structure that, at a minimum, will allow for the separation of its routine sampling personnel from its auditing personnel by two levels of management. In addition, the pre- and post-sample weighing of audit filters must be performed by separate laboratory facility using separate laboratory equipment. Field and laboratory personnel would be required to meet the PEP field and laboratory training and certification requirements. The auditing organizations are also asked to consider participating in the centralized field and laboratory standards certification process.*

Comparable - 40 CFR Part 58 Appendix A Section 3.2.7 makes reference to the fact that the monitoring organizations are responsible for performing the evaluations "...under the PEP or a comparable program." We interpret this to mean that any program that is assumed by a state, local, or Tribal monitoring organization will be run similarly to the federal PEP, as set out in the attachment, and will periodically be subject to performance evaluations with the federal PEP conducted within its respective EPA Region.

Pb-PEP Definitions of Adequate and Independent

Pb-PEP definitions of adequate and independent are very similar to the PM_{2.5}-PEP. The following major elements have not changed and are summarized below.

Adequate - Adequate for the Pb-PEP is described in 40 CFR Part 58 Appendix A Section 3.2.7.

Primary quality assurance organizations (PQAOs) with 5 or less Pb monitoring sites are required to have 5 valid audits per year distributed across the 4 quarters; PQAOs with greater than 5 sites would be required to have 8 valid audits per year distributed across the 4 quarters. EPA requires:

- 100 percent completeness (meaning whatever it takes to get 5 or 8 valid samples).
- All samplers subject to an audit within 6 years.

More details on these criteria are found in the Pb-PEP Implementation Plan (Appendix A) and will eventually be posted on AMTIC as a separate PDF.

Independent - The following definition comes directly from the 2009 Pb- PEP Implementation Plan, found on AMTIC².

² <http://www.epa.gov/ttn/amtic/npepqa.html>

Independent assessment - an assessment performed by a qualified individual, group, or organization that is not part of the organization directly performing and accountable for the work being assessed. This auditing organization must not be involved with the generation of the routine ambient air monitoring data. An organization can conduct the Pb-PEP if it can meet this definition and has a management structure that, at a minimum, will allow for the separation of its routine sampling personnel from its auditing personnel by two levels of management, as illustrated below. In addition, the sample analysis of audit filters must be performed by separate laboratory facility using separate laboratory equipment. Field and laboratory personnel would be required to meet the PEP Audit field and laboratory training and certification requirements. The monitoring organizations will be required to participate in the centralized field and laboratory standards certification and comparison processes to establish comparability to federally-implemented programs.

Comparable - 40 CFR Part 58 Appendix A Section 3.2.7 makes reference to the fact that the monitoring organizations are responsible for performing the evaluations "...under the PEP or a comparable program." We interpret this to mean that any program that is assumed by a state, local, or Tribal monitoring organization will be run similarly to the federal PEP, as set out in the attachment, and will periodically be subject to performance evaluations with the federal PEP conducted within its respective EPA Region.

NPAP Definitions of Adequate and Independent

Adequate - The following is a definition of adequate for NPAP program implementation as promulgated by the new rule and as detailed in this and other posted NPAP implementation guidance documents:

- Performing audits at 20 percent of monitoring sites per year, and 100 percent in 5 years.
- Data submission to AQS.
- Development of a delivery system that will allow for the audit concentration gasses to be introduced to the probe inlet where logistically feasible.
- Use of audit gases that are NIST certified and validated at least once a year for CO, SO₂, and NO₂.
- Validation/certification with the EPA NPAP program through colocated auditing, at an acceptable number of sites each year. The comparison tests would have to be no greater than 5 percent different from the EPA NPAP results.
- Incorporation of NPAP in the monitoring organization's quality assurance project plan.

Independence - Independence is proposed in guidance using the PEP 1998 definition with minor wording revisions for NPAP as written below:

Independent assessment - an assessment performed by a qualified individual, group, or organization that is not part of the organization directly performing and accountable for the work being assessed. This auditing organization must not be involved with the generation of the routine ambient air monitoring data. An organization can conduct the NPAP if it can meet the definition and has a management structure that, at a minimum, will allow for the separation of its routine

sampling personnel from its auditing personnel by two levels of management.

Program Costs

In order to help monitoring organizations make an informed decision, this section provides information on the program costs.

National Cost Estimate - OAQPS estimates the Fiscal Year 2010 (FY 2009) costs to be \$2.15 million: \$1.5 million for PM_{2.5}-PEP, \$200K for Pb-PEP, and \$450K for NPAP.

Special Purpose Monitors - Starting in 2009, any special purpose monitors (SPMs) operating with an FRM, FEM, or ARM and meeting 40 CFR Appendix E siting requirements will be subject to the 40 CFR Appendix A requirements. Therefore, these SPMs need to be considered for NPAP or PEP audits and, at a minimum, be included in the total number of sites for a particular PQAO.

PM_{2.5} PEP Program Costs - Section 5 of the PEP Implementation Plan posted on AMTIC³ provides a reasonable assessment of the resource costs to operate the program. The information, when broken down on a per site basis, comes to approximately \$2,000/site. The \$2,000 includes all field, analytical, data management, and reporting costs. If the proposed PEP approach is accepted, monitoring organizations with 5 or fewer sites will be required to produce 5 valid audits. For completeness purposes, OAQPS has added one extra audit per year so the monitoring organizations' PEP allocation would be \$12,000/year (6* \$2000). For organizations with greater than 5 sites, 9 PEP audits are required (8 + 1 for completeness) which would be \$18,000/year (9* \$2,000). It must be noted that there will be significant start-up costs associated with equipment and consumable purchases that the monitoring organizations will face if they plan on implementing the PEP. OAQPS can provide details on these costs, if requested.

Pb-PEP Program Costs - Section 5 of the Pb-PEP Implementation Plan posted on AMTIC⁴ provides a reasonable assessment of the resource costs to operate the program. A preliminary estimate of the costs for the Pb-PEP program for a PQAO with ≤ 5 sites is \$3,300 (1 PEP audits + 4 collocated-sampler filter analyses by the PEP Lab) and a PQAO with > 5 sites is \$5,275 (2 PEP audits + 6 collocated-sampler filter analyses by the PEP Lab). Costs for the Pb-PEP are estimated on a PQAO basis since this program contains a combination of PEP-like samples and collocated samples whose costs are different.

NPAP Program Costs - Two cost estimates are made for the federally-implemented program; one assuming contractors perform the audits and a second assuming EPA personnel perform the audits.

³ <http://www.epa.gov/ttn/amtic/pmpep.html>

⁴ <http://www.epa.gov/ttn/amtic/npepqa.html>

Contractor Implemented NPAP

Costs estimates for the NPAP are more complicated due to the potential to combine PEP and NPAP activities in some weeks and not in others. For the overall per site cost estimate, OAQPS developed an implementation scenario where a mobile NPAP laboratory is operated 19 weeks a year: 5 weeks solely doing NPAP audits and 14 weeks where the PEP and NPAP audits are combined.

Using the 19-week scenario, and including funds for the mailable system, training, and data management, the estimated per site cost is \$2,200. Therefore, a monitoring organization can estimate the federal costs of NPAP, if the EPA Region is using contractors, by calculating 20 percent of their gaseous pollutant FRM/FEM monitoring sites (not individual monitors) and multiplying that value by \$2,200. Similar to PEP, the federally-implemented NPAP realized significant start-up costs that can be distributed to the monitoring organizations.

EPA Implemented NPAP

There are a number of Regions which have opted to perform the implementation of the NPAP with federal personnel. The non-personnel cost for federal implementation, including the supporting infrastructure, is estimated at about \$750/site.

For CY 2009 implementation, Table 1 identifies the EPA Regions and percentage of sites that will be audited by contractors or by EPA personnel and the per site cost estimate for the monitoring organizations in that Region. In CY 2009, we anticipate performing NPAP audits at approximately 300 monitoring sites.

Table 1. EPA Regions percentage use of contractor or federal personnel for NPAP (CY 2009)

Region	% Contractor	% Federal	STAG Cost (\$/site)
1		100	750
2		100	750
3	100		2,200
4	100		2,200
5	100		2,200
6	100		2,200
7	30	70	1,185
8	100		2,200
9	100		2,200
10	100		2,200

Other Costs Associated With NPAP

Equipment Replacement - A cost that will not be realized in the next few years is for replacement of the mobile laboratories and audit equipment. The costs for the existing mobile NPAP labs have already been incurred by OAQPS. An allowance for eventual replacements is not included in the per site cost estimates. By FY 2009, the federally-implemented program will need to start phasing in purchases of new equipment or mobile laboratories. During the appropriate grant funding cycle, OAQPS will include additional capital costs for

equipment/laboratory replacement and will allocate these across all participating monitoring organizations.

Mailable Audit - Another added cost is the maintenance of a mailable audit system for those remote areas (e.g., Hawaii or Puerto Rico, access restricted areas) where a through-the-probe system cannot currently be transported. It is proposed that a cost of \$30K for the “sentinel” mailable program be distributed across all monitoring organizations and is included in the per site costs.

Additional required across-group costs, a portion of which is included in the per site cost, is for the annual personnel certification training and for annual component and whole system certification.

For those monitoring organizations deciding to implement NPAP themselves, there will still be a federal cost incurred for NPAP since the federally-implemented NPAP will be required to certify the monitoring organization’s program once a year.

Attachment 2

PM_{2.5} Performance Evaluation Program (PEP) & National Performance Audit Program (NPAP) Reporting Organization Implementation Decision Form For Calendar Year 2010

EPA Region	State #	State Abbreviation	PQAO

PQAO Responsible Official	
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Number of PM _{2.5} SLAMS/PAMS/SPM Sites		Number of Gaseous SLAMS/PAMS/SPM Sites	
Number of Pb SLAMS/PAMS/SPM Sites			

PEP Question	(Yes or No) ³	NPAP Question	(Yes or No) ³
Do you plan to implement ¹ an adequate/independent PM _{2.5} PEP in 2010? ²		Do you plan to implement ¹ an adequate/independent NPAP in 2010? ²	

Pb-PEP Question	(Yes or No) ³
Do you plan to implement ¹ an adequate/independent Pb-PEP in 2010? ²	

1. This means the reporting organization could implement their own adequate/independent program or participate in some other state or local or consortium run adequate/independent program.

2. Regions must approve capability by October 1, 2009.

3. A "no" to either answer will indicate that the monitoring organization, for CY 2010, approves re-direction of FY 2010 STAG funds to EPA for federal implementation.